REMARKS

Claims 1 - 4 remain active in this application. The specification has been reviewed and editorial revisions made where seen to be appropriate. Claim 3 has been amended to emphasize novel aspects of the invention. Support for the amendment of claim 3 is found throughout the application, particularly in Figures 4, 5 and 6 and the description thereof on pages 3 - 5 and 12 - 14. No new matter has been introduced into the application.

Claims 1 - 2 have been rejected under 35 U.S.C. §103 as being unpatentable over Kawahara et al. in view of the SGS-Thompson publication and claims 3 - 4 have been rejected under 35 U.S.C. §103 based on the same references in view of the further teachings of Kobayashi et al. These grounds of rejection are respectfully traversed.

In the present invention, as claimed, changing point detection means detects the changing point of the output voltage detection means of a self-power supply. When the power supply changes from a bus power supply to a self-power supply or vice-versa), the changing point detection means resets PHY and separates it from a bus. Then, a bus reset is generated by change of connection by change of power supply connection configuration of a bus (claim 1) or a bus reset is generated by PHY directly (claim 3). Therefore the power class (power supply) of a device and power class information that the bus manager recognizes will be in agreement through use of the (IEEE compliant) self-ID packet generated after bus reset.

That is, the invention is principally directed to the problem of inconsistency between the configuration of the serial bus and the power information for managing the power on the serial bus when the status of the local power supply (or power from the bus) changes.

In accordance with the IEEE standard, the known power-on reset circuit detects when power is supplied to the physical layer circuit, PHY, initially or upon restoration after power interruption but the power-on reset circuit cannot distinguish or discriminate the source of the power being applied. Further in accordance with the IEEE standard, the physical layer interface circuit performs a Self-ID operation and informs the bus manager whether or not power is being obtained from or provided to the bus at the time the Self-ID operation is performed during the reset process in the physical layer interface circuit. For example, in the known two-port repeater arrangement of Figure 2, the power class information in set manually for the self-ID operation (page 5, lines 19 - 20) and in the known two-port repeater arrangement of Figure 3, a code generation circuit 7 is provided to avoid the manual setting (page 6, lines 10 - 15). However, in either case, this process (see page 4, line 22 to page 5, line 5) is performed only when power is applied, either initially or after a power interruption, to PHY 5 and if the status of the local power supply later changes (e.g. from off to on or on to off), there is no provision for reporting that fact to the bus manager so that the distribution of power on the bus can be properly managed.

The invention approaches this problem by monitoring the local power supply independently of the power-on reset circuit and causes reset, including the disconnection of PHY 5 from the bus, the Self-ID process, the communication to the bus manager and reconnection of PHY 5, whenever the status of the local power supply changes in accordance with a first embodiment of the invention (Figure 4). Excess reset operations are avoided in accordance with a second embodiment of the invention (Figure 7) by additional separate monitoring of the power available from the bus

and combining the results of the two monitoring functions to determine when reset should occur. In summary, the basic meritorious function of the invention is to provide additional IEEE 1394 compliant communication of power class information to the bus manager *beyond* the communications specified by IEEE 1394 in order to maintain consistency between the actual power supply configuration and the power class information recognized by the bus manager, *which IEEE 1394 does not guarantee.*

Kawahara et al. teaches a device which monitors the local power supply and generates one of two codes (one indicating that power is not available from the local power supply and the other indicating the amount of power available) depending on the voltage available from the local power supply and provided as flag 26. This code is applied to the physical layer interface circuit (see column 6, lines 43 - 45) but Kawahara et al. is silent as to causing reset of the physical layer circuit or including transmission of the code to the bus manager upon change of power supply status after power application to PHY.

More specifically, Column 5, line 34 - 42, of Kawahara et al. describes that what when the power supply was connected to jack 11, the relay is operated and the equivalent circuit change from that of Figure 2A to that of Figure 2B. Column 6, lines 25 - 34 describe that when power supply voltage is not supplied to the jack 11, the voltage supplied from one connector is supplied to other connectors. Column 7, lines 42 - 45 explains the meaning of power class code when it indicates "100" and this explanation is prescribed by the IEEE 1394 standard. Therefore, there is no changing point detection, as recited, disclosed by Kawahara et al. Kawahara et al. only discloses changing the code of the power class supplied to PHY in accordance with the existence of the voltage of power

supply unit 2 by combining Figure 2A (internal electrical power use) and Figure 2B (external power supply use).

Kawahara et al. does not mention a power-on reset circuit or causing the performance of a reset operation even in response to the power-on reset circuit, much less causing the same action to be performed in response to a detected change in the output of the voltage detection means. Since reset to PHY is not performed even if the operating power supply (an internal or external power supply) is changed, renewal of a power class is not performed. Therefore, Kawahara et al. does not address (or even recognize) the problem of inconsistency between power class information recognized by the bus manager and the actual operating power state. Therefore, Kawahara et al. not only fails to answer the recitations of the claims, particularly in regard to changing point detection and the functions controlled in response thereto but cannot supply evidence of a level of ordinary skill in the art which would support a conclusion of obviousness in regard thereto.

SGS-Thomson merely teaches the bus communications incident to the power-on reset operation and the code packet transmission particulars and does not teach or suggest any reset, initialization or reconfiguration operations be performed beyond the IEEE 1394 standard in response to local power supply conditions. More specifically, the SGS-Thomson documents are data sheets for PHY. Paragraph 2.6 indicates an operation performed when resetting PHY and paragraph 2.7.2 indicates details of the Self-ID packet; both as specified by the IEEE1394 standard. As specified by the IEEE 1394 standard, reset of PHY is usually performed when power is turned on and the SGS-Thomson documents do not describe any other reset of PHY beyond those specified by the IEEE 1394 standard. Therefore,

Kawahara et al. and SGS-Thomson, alone or in combination, do not even recognize the problem addressed by the present invention as recited in the claims, much less provide a solution thereto in the manner supported by the recitations of the claims as originally filed or as now amended.

Specifically, both claims 1 and 3 recite a changing point detection means in addition to a voltage detection means and that the physical layer circuit is reset and the code resulting from the Self-ID process performed as part of the reset process is transmitted to the bus manager *in response to an output of the changing point detection means.* This has been emphasized in claim 3 as amended above by the added recitation of the power-on reset circuit and the reset being performed in response to *either* the power-on reset circuit *or* the changing point detection means. While the Examiner asserts that Kawahara et al. discloses a changing point detection means and cites a passage of column 5 in support thereof, that passage only refers to *connection* of a local power supply, as noted above. The operation of a local power supply, in fact, is indicated by a flag signal 26 which is simply the voltage output from the power supply, whether or not it is capable of providing power at a given time. While this function of flag 26 may generally correspond to the upper curve of Figure 5 of the present application, there is no further circuit which detects the *point* at which the state of the local power supply is considered to change (e.g. the *bottom* curve of Figure 5)or which initiates a reset operation including code production and transmission when such a change occurs as clearly recited in the claims. Therefore, it is respectfully submitted that the Examiner has not demonstrated how Kawahara et al. and SGS-Thomson answer recitations of the claim drawn to these features and has thus not made a *prima facie* demonstration of

obviousness of any claim in the application based on these references.

Similarly, Kobayashi et al. does not mitigate these deficiencies of Kawahara et al. and SGS-Thomson, particularly as applied by the Examiner. Specifically, in regard to claims 3 and 4, the Examiner admits that the combination of Kawahara et al. and SGS-Thomson does not teach or suggest causing bus resetting in response to a changing point detection means but specifically relies on paragraph 0069 of Kobayashi which the Examiner notes as directed to reset upon the "*start* of power in a connected device" (emphasis added) or the power-on reset, admitted in the present application to be known, rather than the use of an *additional* changing point detection means to cause *additional* reset operations including code transmission to a bus manager of results of a Self-ID process. In fact, paragraph 0069 describes a connection configuration of the IEEE 1394 standard. Since the device will be recognized on a bus if the power supply of the device connected to the bus is turned on, connection configuration of a bus changes and bus reset occurs. If a new device is connected or a connected device is removed, the connection configuration of the bus will change and bus reset will occur. In Kobayashi et al., bus reset is generated automatically by detecting that the connection configuration has changed. However, when the power supply *of a connected device* changes (from a bus power supply to a self power supply or vice-versa) in order to *continue* operating, the bus connection configuration clearly does not change and, in accordance with Kobayashi et al., but reset is not generated. Consequently, renewal of a power class is not performed in Kobayashi et al. unless and until a change of connection configuration occurs, even if a power supply of a connected device changes. Therefore, like Kawahara et al. and SGS-Thomson, Kobayashi et al.

does not recognize or seek to address the problem of inconsistency of power class information recognized by the bus manager and the actual power supply operating state of connected devices; which problem is solved by the present invention. Therefore, it is seen that none of the prior art relied upon by the Examiner teaches or suggests the claimed subject matter and cannot provide evidence of a level of ordinary skill in the art which would support a conclusion of obviousness in regard to that subject matter which supports a meritorious function under the IEEE 1394 standard but which is not guaranteed by that standard. This application of the Kobayashi et al. reference is also strongly indicative of the impermissible use of hindsight by the Examiner or substantial confusion in regard to the claimed subject matter in *both* asserted grounds of rejection.

Accordingly, it is respectfully submitted that both the of asserted grounds of rejection are in error and improper. Further, no *prima facie* demonstration of obviousness has been made in regard to any claim in the application. Therefore, it is respectfully requested that the grounds of rejection of claims 1 - 4 be reconsidered and withdrawn.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

A petition for a one-month extension of time has been made above. If any further extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for

such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson).

Respectfully submitted,

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